KARAKTERISASI DAN IDENTIFIKASI KOMPONEN KIMIAWI MINYAK TEMPE SELAMA PROSES PEMBUSUKAN

CHARACTERIZATION AND CHEMICAL COMPOUNDS IDENTIFICATION OF TEMPE OIL DURING DECAYING PROCESS

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ABSTRACT

The objectives of this study are: Firstly, to determine the optimum yield of tempe oil during decaying process. Secondly, to determine the physico-chemical properties of tempe oil. Thirdly, to identify chemical compound of tempe oil by GC-MS (Gas Chromatography-Mass Spectrometry). The extraction has been done by soxhlet apparatus in period of 6 hours, using n-hexane. Further on, the physico-chemical properties of tempe oil were carried out based on SNI 01-3555-1998, and the identification of tempe oil chemical compound was done using GC-MS. Data of oil yield were analyzed using Randomized Completely Block Design (RBCD), 8 treatments and 4 replications. As the treatment is the decaying period of tempe which are 2-9 days, while the time of analysis as the block. To test the difference between the treatment means, the Honestly Significant Difference (HSD) at 5% significance level were used.

The results of this study showed that the optimum oil yield 13.18% is obtained from 7^{th} day decaying period (H-7). The physico-chemical properties of 7^{th} day decaying (H-7) tempe oil are as follows: oil has brown color with the scent of rotten tempe; water content 0.81%; density 0.9002 g/cm^3; viscosity 139.71 cP; acid value 168.3 $^{mg\ KOH}/_{g}$; saponification value 10.51 $^{mg\ KOH}/_{g}$; and peroxide value 4.80 $^{mgek}/_{kg}$, respectively. The results of GC-MS analysis showed that the main component of H-7 tempe oil is methyl linoleate in amount of 79.74%. While, the other components are methyl palmitate = 12.32%; methyl stearate = 7.08%; methyl arachidate = 0.44%; and methyl behenate = 0.42%, respectively.

Keywords: oil chemical compound, oil extraction, oil physico-chemical properties, decaying tempe, decaying process